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ABSTRACT

Teachers of telecommunications, broadcasting, and especially video and film production, are best able to lead the development of computer interactive multimedia instruction. Interactive instruction exists on three levels: (1) a videotape player with rewind, fast-forward, search, pause, and play capabilities; (2) a videodisc or laser disc player with the aforementioned capabilities plus an accompanying computer capable of running simple programs; and (3) a videotape or laser disc player connected to a personal computer, thereby allowing production of interactive video programs according to the instructor's needs. It is possible for instructors who aren't familiar with computer programming to design inexpensive, innovative programs using either videotape or videodisc. Another application of interactive multimedia is in media research, specifically data gathering and data analysis. (8 references) (DB)

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Interactive Multimedia in Video Production Education

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RUNNING HEAD: INTERACTIVE MULTIMEDIA IN VIDEO

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Abstract

In this essay, the author posits that Electronic Media faculty in general, and Video Production instructors, specifically, ought to be leaders in the development of interactive multimedia in instruction. A brief description of the technology, presentation of its instructional advantages, a discussion of common misconceptions, and an examination of recent technological developments are offered as rationale. Possibilities for broad application of interactive multimedia to Mass Communication educational and research objectives are considered.

Interactive Multimedia in Video Production Education:

Embracing the Technology

Broadcast educators, especially those who teach video production in one form or another, ought to be on the leading edge of computer interactive multimedia development, in context of instructional application. By "interactive," I mean those computer applications which allow the user to control the media components (audio, video, text, graphics, and/or animation) of an educational or instructional program. This requires the integration of a personal computer and a video tape or video disc player.

While the computer controls the player, the user controls both. This unique and versatile media mix has been around for over a decade, but broadcast educators have failed to make major use of it. This is not an indictment. There are some very good reasons for our hesitation, not the least of which is financial. After all, the laser disc, traditionally the preferred interactive format, flopped as a consumer item in the eighties, limiting mass production, and keeping prices high. As far as computers are concerned, many of us are just now coming to grips with the fact that the confounded things are necessary.

The good news is that recent developments in video tape, disc and computer technology have merged to create an environment wherein the design of interactive media is easy, inexpensive, and in my opinion, absolutely irresistable. What better way to take advantage of these advances, to utilize, and even push the envelope of computer interaction, than in the teaching of video production? It seems the natural progression of things. College and

university video production instructors should lead, not follow, high school Civics teachers into the decade of "hypermedia." More on that last point later, but first, a look at certain commonalities of video instruction and some background on interactive video.

The Broadcast Education Association is currently questioning the efficacy of its title, therefore of its charge, and of "broadcast" education in its narrow sense of "over-the-air" transmission. Whether broadcast educators ought to teach "television" production or a more generic "video" course is a valid consideration. Of the ten video production textbooks most used at colleges and universities, eight feature the word "television" in their titles (Grant & Leebron, 1988). The exceptions are: Peter Utz's Video User's Handbook, (1982) and Gorham Kindem's The Moving Image. (1987). Still, instructors cannot, and do not ignore the burgeoning fields of corporate, institutional and consumer video production. Text titles like the latter of those above, and other quality works such as Electronic Cinematography (Mathias & Patterson, 1985), and Video Field Production (Whittaker, 1989) reflect the significantly expanded focus prevalent in video production courses today. I believe broadcast educators appreciate the developments in the video industry and are taking steps to adapt. Whether the word "television" sticks with us for a while, or is totally replaced by "video" is not an urgent concern. Non-broadcast video users seem quite comfortable with broad use of the terms "television" and "TV," and after all, much of what is aired on broadcast or community antenna television, was originated on an older visual medium: film. Maybe, as TV news photographer Jerry White points out, we ought to resurrect the term "motion

picture" as our semantic catch-all moniker

Still, even when we consider the plethora of purposes served by modern video production, there are a number of basic, fairly-universal elements which must be understood by the video production student. "Video techniques including camera operation, shot composition, switching, and directing take up the greatest proportion of time in introductory courses." (Grant & Leebron, 1988, p. 33) We have a variety of books and videotapes available to aid in this instruction, but unless we tap the resources made possible by computer-interactivity, we will be passed by as others benefit from interactive video, a logical extension of our own specialty field.

While textbooks on Video Production are generally structured for traditional, linear learning, we often use them in a more interactive manner. We use indices and page numbers. We skip some chapters, and emphasize others. We use our hands, eyes and brains to "access" those portions of the text we consider most germane to our objectives. There are also many videotapes available on the subject which, although designed for linear viewing, can be used as reference sources, or review materials. We use rewind, fast-forward and search controls to "access" the information we seek.

That's precisely how we use interactive multimedia, but the computer makes our search much more precise, and reduces "access-time," the time it takes to get from one part of the program to another. Computer interaction also allows for new integrative strategies that take advantage of current understanding as to how people learn. "Discovery learning," and "knowledge navigation" are terms commonly used to describe the interactive multimedia

experience.

> Conventional linear video, like television, is a passive medium: the viewer may react to the program on the screen, but has no more control over it than to turn it on and off. In interactive video, the user controls the actual pace and direction of the program. It is, in a sense, the user who effects the final edit -- every time the program is run. Far from harbinging a science fiction future where hardware displaces people, interactive video is perhaps the ultimate user-friendly medium: it needs people to give it purpose, or, indeed, to work at all. (Parsloe, 1985, p.2)

Researchers in Psychology, Education and Communication provide a great deal of insight as to the different ways human beings aquire new knowledge. Our teaching methods should be designed to address the different cognitive learning styles and modality preferences of students. A well designed interactive multimedia program presents information-redundant, and information-complementary messages that involve the pupil aurally, visually, and kinetically.

In the typical video production course, a student views and listens to lectures which may be supplemented with chalkboard drawings, transparencies, photographs, and/or videotaped sequences. The student then has opportunities to apply learned concepts in a laboratory setting. Additionally, the textbook provides reference material, terminology, sketches and photographs. If a student has a particularly difficult time grasping a specific concept, this may hamper his ability to progress with the rest of the class. Textbooks are inflexible, lab time is limited, and lectures must proceed at

a relatively standard pace. Add to this environment, a custom-made interactive program, and the struggling student has a powerful new option. He can drill, and drill, and drill. The computer's patience is limitless. The student's pace and direction in his discovery of video production concepts can be made dependent on his own answers to questions, his own progress in completing segments of the program, or his own preferences. Print, graphics, music, sound effects, dialogue, still pictures, moving video, and animation can tap the learning potential of his two most powerful learning senses, and his own interaction through a "mouse," keyboard, or touchscreen involves a third.

Of course there are many additional applications for interactive multimedia in production courses, not the least of which is testing. Students can view, review, critique, and even edit material presented in an interactive examination, and the computer can handle much of the grading process. In this teacher's opinion, *advanced* video production students ought to be learning how to design interactive multimedia programs as well as the more traditional forms.

One can easily get carried away discussing the instructional potential offered through computer interactivity. Perhaps this is the proper place for a brief discussion of the three basic levels of interactivity. A reader familiar with these terms may wish to fast forward to the "Mythology" segment beginning on page ten.

Level one: All this means is that the video playback device has rewind, fast-forward, search, pause, and play buttons on it. My four-year-old who cues up and watches "The Cat in the Hat" on our home vcr is making use of level one

interactivity.

Level two: In addition to the capabilities listed above, a level two system allows the viewer to "branch" to different places in the video program. The video disc player has a small "on-board" computer capable of running simple programs. The programs themselves are actually recorded on the video disc. The program directs the playback device to access, omit, or review different portions of the audio and video information recorded on the disc, based on input received from the viewer/user. The program is written and pressed into the disc prior to distribution, and cannot be erased or altered. The on-board microprocesser is also capable of tallying and scoring viewer input. The lure of level two is its simplicity. Level two programs are often used for such applications as point-of-purchase displays, and employee training. Since this level of interactivity requires production of high quality laser discs, and playback on industrial laser disc players, it is only cost effective if you have a relatively large end-user population, or can otherwise justify the expense.

Level three: This is where the action is, especially for the educator. At level three the video playback device is interfaced with a separate personal computer. Programmers can custom tailor interactive programs for off-air and off-the-shelf video tapes and discs, or produce video programs with computer interactivity in mind. Tapes, and computer programs can be changed or altered at any time. Teachers can even predesign interactive programs so that they can be modified by student users. Several programs can be written for one video program. All of the calculating and storage power of the computer can be applied to interactive programs, as well as

computer graphics, synthesized sound and animation.

One outstanding example of a level three interactive multimedia program is that recently designed by ABC News Interactive and Optical Data Corporation. Peter Jennings and his colleagues used a "Hypercard" program and Apple Macintosh computers to assist in their coverage of the 1988 presidential campaign. After the election, ABC News was left with two valuable educational resources: miles of videotaped material from campaign coverage, and the Hypercard application which allowed easy, quick access to details on candidates' backgrounds, achievements, and positions on important issues. Working with Optical Data Corporation, ABC News created a videodisc and computer-interactive program called "The 88 Vote: Campaign for the White House, " for use in high schools across the country. What better function could there be for a backroom full of broadcast quality, audio visual information, produced by some of the best videographers and electronic journalists in the world? Whereas the campaign footage became old news almost immediately, and had no value to ABC News beyond source material for the occasional "retrospective" feature, that same information is being explored almost daily by future politicians, journalists and voters.

A number of recent developments in interactive multimedia technology have obviated the need for special equipment or training. Many who have considered using interactive may be surprised at how easy it is to get started. Here I'd like to dispell some of the incorrect or outdated myths regarding interactive media.

Myth #1: You have to be a computer "nerd" to write

interactive programs.

One can point to any current computer application and say , "There was a time when you had to be a computer programmer or engineer to be able to do that." This is true for interactive multimedia as well. Today, however there are a number of "authoring systems" which allow even the novice computer user to design powerful and attractive programs.

There are icon-based languages designed specifically for the Apple Macintosh family of computers, for example. They allow not only programmers, but users as well, to control and manipulate video by clicking the handy Macintosh mouse. Rather than requiring a programmer to master an endless vocabulary of characters and character strings, these languages allow the program designer to "pick up," "drag," and place a variety of icons called "blocks" or "states" along a path or course.

Each icon represents a different programming option. You might have a text or design icon which is used to pose a problem or question, followed by a mouse input icon, requiring an answer from the user. That answer may then trigger one of a variety of available paths, perhaps leading to a video icon, playing back a portion of footage on the video monitor, and/or a music - accompanied animation sequence on the computer screen. The resulting "program" is basically one big "flow chart." When you've finished mapping out the flow chart, your program is written.

If even this level of programming makes you a bit skittish, don't worry. Just as you don't have to write a textbook to teach with one, you don't have to write interactive programs to make use of them. Those who wish to design

programs will make them available to the rest of us in the traditional ways, through academic clearinghouses, workshops, conferences, and most preferably for the designers, through publication of copyrighted software. I'd like to see every video production textbook published with a companion interactive multimedia program for drill, practice and testing.

Myth #2: You have to use laser disc technology.

This is only true of level two systems. There are peripheral's and software packages available to interface personal computers with virtually every format of videotape in broad use today. True, from the end-user's perspective video disc players are clearly superior to tape machines. They offer quicker access time, high resolution, and stable freeze frames. There's only one problem. In many applications, it is just too expensive to press a video disc.

The alternative is videotape. While laser discs give us virtual random access, tape has to be rewound and fast-forwarded to the appropriate points designated by the interactive program. This takes time. However, if writers stick to terse, compact applications, and are smart in predicting the most likely paths users will follow, access time can be minimized. In addition, clever program designers will make sure there is something of importance or interest happening on the computer screen during videotape "down" time.

Less than a year ago I went in search of an icon-based interactive system that would allow me to control a low-cost VHS vcr with a Macintosh computer for level three interactivity. I wanted to use the Mac for a very simple reason, I had one in my office. My preference for VHS was based on its ubiquity. Sure, I like quality images and high resolution as much as the next

videophobe. But, I also wanted to be able to produce a show, or tape a program off the air one day, and have an interactive program for it up and running by the next. I was out of luck, but the computer industry moves quickly. Today there are at least three VHS vcrs for which level-three systems have been designed, as well as a few SVHS and 8mm decks.

Myth #3: It's too expensive.

Not any more! See myth #2. You can spend lots and lots of money on powerful computers, laser disc recorder/players, and high resolution touch screen monitors, and the results will be outstanding. If, however you're on a tight budget, as are most broadcast educators, you now have some rather attractive options. If you've already got a personal computer, a Macintosh SE, for example, you can get a compatible VHS vcr for as low as $500 or $600, with industrial grade machines costing up to thrice that amount. For about $700 or less you can purchase the state-of-the-art in authoring systems, and that includes the computer - video player interface. Then, if you want to add different tape or disc formats later, and you don't have the right interface, you simply pay $200 or so for the additional cables, connectors and software to control the new machines. Of course, schools don't even necessarily need to go to the expense of buying the authoring system. The cost of pre-written, stand-alone programs should be quite economical.

If you're still holding out for laser disc playback, cheer up. The format is finally catching on with consumers, especially since new model players can play audio C.D.s as well. Costs for laser disc players, AND RECORDERS are coming down.

Myth #4: Interactive multimedia will eventually replace printed texts.

This is reactionary, possibly even alarmist, and certainly hard to believe. While broadcast TV is hopelessly linear, books and other printed media are far more analogous to interactive media. Computers just allow us to skim, skip, and search faster, more accurately, and involves more of our senses. Maybe paper will eventually be outmoded, but there will always be a place for organized, structured, detailed, and yes, linear communication in the teaching environment.

Up to now I have focused specifically on the application of interactive multimedia to teaching video production. I do so, because I feel media designers of the near future will need to consider interactivity in a large portion of their work, especially those working in non-broadcast video. Perhaps production students ought to be the first target market for our interactive efforts, but the technology clearly lends itself to application in virtually every type of broadcasting, electronic media, or telecommunication course.

As an example, a Broadcast Journalism student can be taken on a tour of several minutes of "raw footage," disparate facts and notes , interviews, and prepared statements regarding a newsworthy event. Then, through interactive multimedia, the student can write, edit, view, critique, and revise the story for a hypothetical newscast, and/or for a grade.

As a teaching tool, interactivity can handle applications on any scale, from an intimate tutorial to a fullscale simulation as vivid and

> unpredictable as real-life drama. It caters equally for the needs of individuals and small groups. One well-planned program can adapt to the perceived abilities and needs of many different users. (Parsloe, 1985, 4)

Perhaps ironically, it was not my work as a television producer or video production instructor that led me to explore interactive multimedia. My research interests include a professional curiosity as to how TV news directors and producers make difficult, controversial or sensitive gatekeeping decisions.

I'm not satisfied with simply asking TV news professionals what they might do in different hypothetical situations. I want to more accurately simulate the decision-making contextual environment. Interactive multimedia is proving a powerful means to that end. Specifically, I can present raw footage, and several different edited versions of a news story to a respondant through interactive video, and ask her which version of the story she would put on the air in a variety of journalistic situations. Computer-interaction allows the newsperson to review the different story versions, in any order, as needed, to ask for "help," in terms of deadline or program runtime information, or to receive information regarding competing stations' coverage of the story. Of course, the computer is useful in gathering, coding and evaluating all matter of demographic, subject characteristic, and other data, within one, self contained interactive program. All the respondant needs to know about computers is how to push a few buttons on a simple keyboard, a task less difficult than typing.

It takes little imagination to realize the wide variety of media research applications that can be served by computer interactive methods. As Goodman

wrote in the Spring issue of Feedback, a handful of electronic media researchers are already applying interactive video to data-gathering tasks (1989).

In conclusion, I consider level three interactive multimedia a cost-effective and logical vehicle for improved video production instruction for the 90s. In addition, media researchers not already doing so, should examine the unique characteristics of computer interactive multimedia for data gathering and analysis.

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